

Application No.: 10/586,129
Appeal Brief Dated: April 8, 2011
Reply to Office Action of: December 8, 2010

MAT-8869US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No: 10/586,129
Appellants: Takayasu OHARA et al.
Filed: July 17, 2006
Title: INDUSTRIAL ROBOT
T.C./A.U.: 3742
Examiner: Ket D. Dang
Confirmation No.: 1818
Docket No.: MAT-8869US

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

S I R :

Appellants hereby request consideration and reversal of the Final Rejection dated **December 8, 2010**, of claims 1, 2, and 4-14.

This Brief is presented in the format required by 37 C.F.R. § 41.37, in order to facilitate review by the Board. In compliance with 37 C.F.R. § 41.37(a)(1), this Brief is being filed within the time allowed for response to the action from which the Appeal was taken or within two months from the date of the Notice of Appeal, whichever is later.

The fees for filing a Brief in support of an Appeal under 37 C.F.R. § 41.20(b)(2), together with any extension fee required in connection with the filing of this Brief, are provided herewith.

I. REAL PARTY IN INTEREST

The real party in interest is Panasonic Corporation.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences related to the subject matter of this Appeal.

III. STATUS OF CLAIMS

Claims 1, 2, and 4-14 are pending in the above-referenced application. Claims 1, 2, and 4-14 stand rejected, and are being appealed.

IV. STATUS OF AMENDMENTS

The present application is under Final Rejection. All previous Amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to an industrial robot. An exemplary industrial robot is illustrated in FIGS. 1-5. With respect to Appellants' claim 1, an industrial robot is capable of being used in a floor-mounted state and a ceiling-mounted state. (See FIGS. 1 and 2). The industrial robot includes a base (e.g., base 11) for installation. The industrial robot also includes a first arm (e.g., first arm 12) rotatably attached to the base. The industrial robot also includes a second arm (e.g., second arm 14) that is pivotable with respect to the first arm. The industrial robot also includes a third arm (e.g., third arm 15) that is pivotably attached to the second arm. The industrial robot also includes a wire feeder (e.g., feeder 16) provided to the second arm. (See Specification at page 5, lines 11-17, and FIG. 1). The wire feeder is rotatable relative to the second arm around a rotation axis (e.g., rotation axis 17A). (See Specification at page 5, lines 24-25). The industrial robot further includes a welding torch (e.g., welding torch 19) and a torch cable (e.g., torch cable 18) coupled to the wire feeder for feeding a welding wire to the welding torch. (See Specification at page 5, lines 17-24). The industrial robot also includes a rotating hollow pipe shaft

(e.g. shaft 21) located coaxially with the rotation axis of the wire feeder. (See Specification at page 6, lines 19-24, and FIG. 3). The industrial robot also includes a feeder cable (e.g., cable 22) that electrically couples between an inside of the industrial robot and the wire feeder. (See id.). The feeder cable passes through the rotating hollow pipe shaft from a first end to a second end opposite the first end. (See id.).

With respect to Appellants' claim 9, an industrial robot is capable of being used in a floor-mounted state and a ceiling-mounted state. (See FIGS. 1 and 2). The industrial robot includes a base (e.g., base 11) for installation. The industrial robot also includes a first arm (e.g., first arm 12) rotatably attached to the base. The industrial robot also includes a second arm (e.g., second arm 14) that is pivotable with respect to the first arm. The industrial robot also includes a third arm (e.g., third arm 15) that is pivotably attached to the second arm. (See Specification at page 5, lines 11-17, and FIG. 1). The industrial robot also includes a fourth arm (e.g., fourth arm 13) attached to one side face of the first arm and one side face of the second arm. (See Specification at page 5, line 26 to page 6, line 1, and FIGS. 1 and 4). The fourth arm is pivotable with respect to the first arm and the second arm. (See Specification at page 5, lines 13-14). The industrial robot also includes a wire feeder (e.g., feeder 16) provided to the second arm. (See Specification at page 5, lines 16-17, and FIG. 1). The wire feeder is rotatable relative to the second arm around a rotation axis (e.g., rotation axis 17A). (See Specification at page 5, lines 24-25). The wire feeder is located opposite to the fourth arm relative to a rotating axis of the first arm. (See Specification at page 6, lines 13-18, and FIGS. 4 and 5). The industrial robot further includes a welding torch (e.g., welding torch 19) and a torch cable (e.g., torch cable 18) coupled to the wire feeder for feeding a welding wire to the welding torch. (See Specification at page 5, lines 17-24).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 2, and 4-14 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Haniya et al. (US 2004/0261562) in view of Meyerhoff et al. (US 2005/0166699).

VII. ARGUMENT

A. OVERVIEW OF ARGUMENTS

Claims 1, 2, and 4-14 stand rejected as unpatentable over Haniya in view of Meyerhoff. Appellants submit that this rejection should be reversed for the following reasons.

Claims 1, 2, and 4-8 include the feature of a rotatable wire feeder ("a wire feeder...rotatable relative to the second arm around a rotation axis"). Thus, for a reference to be used in rejected Appellants' claims, the reference must disclose a rotatable wire feeder. The Examiner asserts that this feature is shown in the wire feeding unit 11 of Haniya. However, the Examiner is incorrect, because the wire feeding unit 11 of Haniya is not rotatable, but is fixed to the industrial robot.

Claims 1, 2, and 4-8 also include the feature of a cable electrically coupling the wire feeder to an industrial robot ("a feeder cable electrically coupling between an inside of the industrial robot and the wire feeder"). Thus, for a reference to be used in rejected Appellants' claims, the reference must disclose electrical coupling. The Examiner asserts that this feature is shown in the conduit cable 12 of Haniya. However, the Examiner is incorrect, because the conduit cable 12 of Haniya does not electrically couple the wire feeding unit 11 to the industrial robot.

Finally, claims 9-14 include the feature of a wire feeder positioned on a side face of an industrial robot that is opposite from an arm of the industrial robot ("a fourth arm attached to...one side face of the second arm [and] a wire feeder provided to the second arm...located opposite to the fourth arm"). The Examiner does not address this feature at all in the Office Action. Nonetheless, this feature is not disclosed, taught, or suggested by the cited art, because the wire feeding unit 11 of Haniya is positioned behind the industrial robot, and not on a side face opposite an arm of the robot.

Accordingly, Appellants respectfully submit that these claims are allowable over the cited art. Appellants' detailed arguments in support of reversing the rejection are set forth below.

B. REJECTION OF CLAIMS 1, 2, AND 4-8

Claims 1, 2, and 4-8 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Haniya in view of Meyerhoff. This rejection is respectfully traversed.

Appellants' invention, as recited by claim 1, includes a feature which is not disclosed, taught, or suggested by the cited art, namely:

...a wire feeder provided to the second arm and being rotatable relative to the second arm around a rotation axis...

...a rotating hollow pipe shaft located coaxially with the rotation axis of the wire feeder...and...

...a feeder cable electrically coupling between an inside of the industrial robot and the wire feeder, the feeder cable passing through the rotating hollow pipe shaft...

The wire feeder is rotatable relative to the second arm around a rotation axis. The rotating hollow pipe shaft is located coaxially with the rotation axis of the wire feeder. The feeder cable passes through the rotating hollow pipe shaft to electrically couple the wire feeder with the industrial robot. (See Specification at page 5, line 19 to page 6, line 24, and FIGS. 2 and 3). Because of the above feature of claim 1, the layout of the wire feeder and the feeder cable does not need to be changed when the industrial robot is converted between floor-mounted use and ceiling-mounted use. (See Specification at page 8, lines 15-23).

To establish a *prima facie* case of obviousness of claims 1, 2, and 4-8, the combination of Haniya and Meyerhoff must disclose, teach, or suggest every feature of the claims.

Haniya is directed to an industrial robot. As illustrated in FIGS. 1 and 2, Haniya discloses an industrial robot mounted on a base stand 1. A turning base 2 is mounted to the base stand 1. A lower arm 3 is supported on the turning base 2. A upper arm 4 is pivotably mounted on the lower arm 3. Haniya further discloses a wire feeding unit 11 fixed to the rear portion of upper arm 4. Wire feeding unit 11 feeds

welding wire through a conduit cable 12 to a wire torch 9. (See Haniya at paragraphs [0033]-[0035], and FIGS. 1 and 2).

The Office Action asserts that the wire feeding unit 11 of Haniya corresponds to the wire feeder of claim 1, and the upper arm 4 corresponds to the second arm of claim 1. (See Office Action at section 4). Appellants submit that, even if this assertion is correct, Haniya fails to disclose, teach, or suggest the features of claim 1. Haniya does not disclose, teach, or suggest that wire feeding unit 11 is rotatable relative to upper arm 4. To the contrary, Haniya clearly discloses that wire feeding unit 11 is fixedly mounted to upper arm 4. (See Haniya at FIGS. 1 and 2).

The Office Action incorrectly asserts that wire feeding unit 11 is rotatable around the R-axis shown in FIG. 1 of Haniya. (See Office Action at section 4). Instead, Haniya discloses that it is wrist portion 5 that is rotatable relative to upper arm 4 around the R-axis. (See Haniya at paragraph [0034]). Haniya fails to disclose, teach, or suggest that wire feeding unit 11 is rotatable relative to upper arm 4 around the R-axis.

Further, the Office Action asserts that conduit cable 12 corresponds to the feeder cable of claim 1. (See Office Action at section 4) Appellants disagree. Haniya does not disclose, teach, or suggest that the conduit cable 12 provides electrical coupling between an inside of the industrial robot and wire feeding unit 11. To the contrary, Haniya discloses that conduit cable 12 feeds welding wire from wire feeding unit 11 to wire torch 9. Thus, conduit cable 12 is similar to the torch cable of claim 1, and does not correspond to the feeder cable of claim 1. Appellants respectfully submit that Haniya fails to disclose, teach, or suggest an element corresponding to the feeder cable of claim 1.

Accordingly, Appellants submit that Haniya fails to disclose, teach, or suggest at least the above features of claim 1. Appellants further submit that Meyerhoff fails to make up for the deficiencies of Haniya with respect to claim 1.

Meyerhoff is directed to a multi-joint robot. As illustrated in FIG. 7, Meyerhoff discloses a multi-joint robot having arms 13 and 15. Arms 13 and 15 are rotatable

relative to each other around hollow shaft 14. Wiring 36 passes through hollow shaft 14. (See Meyerhoff at paragraphs [0054]-[0057], and FIG. 7).

The Office Action does not assert that Meyerhoff discloses either a wire feeder or a feeder cable. Appellants submit that Meyerhoff does not disclose a welding wire feeder, and thus, does not disclose, teach, or suggest either (a) a wire feeder that is rotatable or (b) a feeder cable that electrically couples between an inside of an industrial robot and a wire feeder.

For the above reasons, Appellants submit that none of the above references, either alone or by their combination, discloses, teaches, or suggests "a wire feeder provided to the second arm and being rotatable relative to the second arm around a rotation axis...a rotating hollow pipe shaft located coaxially with the rotation axis of the wire feeder...and a feeder cable electrically coupling between an inside of the industrial robot and the wire feeder, the feeder cable passing through the rotating hollow pipe shaft," as recited in claim 1.

Accordingly, Appellants respectfully submit that the above feature of claim 1 would not have been obvious in light of the above references to one of ordinary skill in the art. Therefore, claim 1 is not obvious over Haniya in view of Meyerhoff. Claims 2 and 4-8 are not obvious over Haniya in view of Meyerhoff by virtue of their dependence on claim 1.

C. REJECTION OF CLAIMS 9-14

Claims 9-14 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Haniya in view of Meyerhoff. This rejection is respectfully traversed.

Appellants' invention, as recited by claim 9, includes a feature which is not disclosed, taught, or suggested by the cited art, namely:

...a second arm...

...a fourth arm attached to...one side face of the second arm...

...a wire feeder provided to the second arm...the wire feeder located opposite to the fourth arm relative to a rotating axis of the first arm....

The fourth arm and the wire feeder are both attached to the second arm. The wire feeder is located on an opposite side of the second arm from the fourth arm, relative to the axis of rotation of the first arm. (See Specification at page 5, line 19 to page 6, line 24, and FIGS. 4 and 5). Because of the above feature of claim 1, the fourth arm does not interfere with the rotation of the wire feeder, regardless of whether the industrial robot is in a ceiling-mounted or floor-mounted position. (See Specification at page 6, lines 13-18).

To establish a *prima facie* case of obviousness of claims 9-14, the combination of Haniya and Meyerhoff must disclose, teach, or suggest every feature of the claims.

The disclosures of Haniya and Meyerhoff are set forth above. The Office Action asserts that upper arm 4 corresponds to the second arm of claim 9, and lower arm 3 corresponds to the fourth arm of claim 9. (See the Office Action at section 4). However, the Office Action does not assert that Haniya discloses, teaches, or suggests the feature of "a wire feeder...located opposite to the fourth arm relative to a rotating axis of the first arm," as recited in claim 9. This feature is not addressed at all the Office Action.

Appellants submit that Haniya does not disclose this feature. As illustrated in FIGS. 1 and 2, Haniya discloses that wire feeding unit 11 is positioned behind upper arm 4. See FIGS. 1 and 2 of Haniya. Haniya fails to disclose, teach, or suggest that wire feeding unit 11 is located on an opposite side from lower arm 3.

Accordingly, Appellants submit that Haniya fails to disclose, teach, or suggest at least the above features of claim 1. Appellants further submit that Meyerhoff fails to make up for the deficiencies of Haniya with respect to claim 1. Meyerhoff does not disclose a welding wire feeder, and thus, does not provide any teaching regarding the location of a wire feeder on an industrial robot.

For the above reasons, Appellants submit that none of the above references, either alone or by their combination, discloses, teaches, or suggests "a second arm...a

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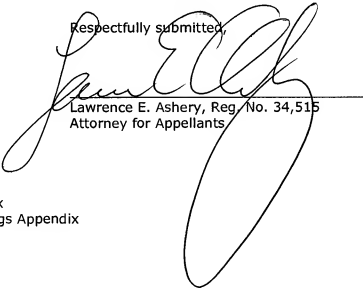
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fourth arm attached to...one side face of the second arm...[and] a wire feeder provided to the second arm...the wire feeder located opposite to the fourth arm relative to a rotating axis of the first arm," as recited in claim 9.

Accordingly, Appellants respectfully submit that the above feature of claim 9 would not have been obvious in light of the above references to one of ordinary skill in the art. Therefore, claim 9 is not obvious over Haniya in view of Meyerhoff. Claims 10-14 are not obvious over Haniya in view of Meyerhoff by virtue of their dependence on claim 9.

In view of the arguments set forth above, reversal of the rejection of the claims of the above-identified application is respectfully requested.

Respectfully submitted,



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Attachments: Claims Appendix
Evidence Appendix
Related Proceedings Appendix

Dated: April 8, 2011

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AJK_1225582

VIII. CLAIMS APPENDIX

1. (Previously Presented) An industrial robot capable of being used in a floor-mounted state and a ceiling-mounted state, comprising:

a base for installation;

a first arm rotatably attached to the base;

a second arm being pivotable with respect to the first arm;

a third arm pivotably attached to the second arm;

a wire feeder provided to the second arm and being rotatable relative to the second arm around a rotation axis;

a welding torch;

a torch cable for feeding a welding wire to the welding torch, the torch cable coupled to the wire feeder;

a rotating hollow pipe shaft located coaxially with the rotation axis of the wire feeder; and

a feeder cable electrically coupling between an inside of the industrial robot and the wire feeder, the feeder cable passing through the rotating hollow pipe shaft from a first end to a second end opposite the first end.

2. (Original) The industrial robot according to claim 1, further comprising a fixing device including the rotation axis and provided to the second arm.

3. (Cancelled)

4. (Original) The industrial robot according to claim 1, further comprising a rotation fixing part for fixing an rotation angle of the wire feeder.

5. (Original) The industrial robot according to claim 1, wherein a position to which the wire feeder is attached is offset to a position apart from the third arm.

6. (Original) The industrial robot according to claim 1, wherein at least a part of the wire feeder is located on the second arm.

7. (Original) The industrial robot according to claim 1, further comprising a fourth arm pivotably attached to the first arm and the second arm.

8. (Original) The industrial robot according to claim 7, wherein the fourth arm is attached to one side face of the first arm and one side face of the second arm, and the wire feeder is located opposite to the fourth arm relatively to a rotating axis of the first arm.

9. (Previously Presented) An industrial robot capable of being used in a floor-mounted state and a ceiling-mounted state, comprising:

a base for installation;

a first arm rotatably attached to the base;

a second arm being pivotable with respect to the first arm;

a third arm pivotably attached to the second arm;

a fourth arm attached to one side face of the first arm and one side face of the second arm, the fourth arm pivotable with respect to the first arm and the second arm;

a wire feeder provided to the second arm and being rotatable around a rotation axis, the wire feeder located opposite to the fourth arm relative to a rotating axis of the first arm;

a welding torch; and

a torch cable for feeding a welding wire to the welding torch, the torch cable coupled to the wire feeder.

10. (Previously Presented) The industrial robot according to claim 9, further comprising a fixing device including the rotation axis and provided to the second arm.

11. (Previously Presented) The industrial robot according to claim 9, further comprising a feeder cable for electrically coupling between an inside of the industrial robot and the wire feeder;

wherein the rotation axis is composed of a rotating hollow pipe shaft, and the feeder cable passes through the rotating hollow pipe shaft.

12. (Previously Presented) The industrial robot according to claim 9, further comprising a rotation fixing part for fixing an rotation angle of the wire feeder.

13. (Previously Presented) The industrial robot according to claim 9, wherein a position to which the wire feeder is attached is offset to a position apart from the third arm.

14. (Previously Presented) The industrial robot according to claim 9, wherein at least a part of the wire feeder is located on the second arm.

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IX. EVIDENCE APPENDIX

None.

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X. RELATED PROCEEDINGS APPENDIX

None.